GAIN Gateway for Accelerated Innovation in Nuclear

U.S. DEPARTMENT OF ENERGY | Office of Nuclear Energy

Gateway for Accelerated Innovation in Nuclear

Nuclear energy is a proven baseload, zero-emission power source. One of the Department of Energy's missions is to advance nuclear power as a resource capable of meeting the nation's energy, environmental and national security needs by resolving technical, cost, safety, proliferation resistance, and security barriers through research, development and demonstration (RD&D).

Accomplishing this mission will realize the enormous potential of nuclear energy and maintain the United States' historic leadership in the field. While many innovative ideas exist, the RD&D needed to bring these concepts to a commercial readiness level is traditionally lengthy and expensive.

Why is GAIN needed?

The facilities needed to conduct the necessary RD&D activities are very expensive to develop and maintain. Facilities at government sites have not been easily accessible by the entities trying to commercialize creative systems and components.

Additionally, the regulatory framework for novel ideas needs to be streamlined, with a clear, defined set of requirements for licensing concepts. Reducing the uncertainties and financial risks of achieving technical readiness and licensing will help spur further investment in innovative nuclear energy technologies.

What is GAIN?

Through GAIN, DOE is making its state-of-the art and continuously improving RD&D infrastructure available to stakeholders to achieve faster and cost-effective development of innovative nuclear energy technologies toward commercial readiness. The capabilities accessible through GAIN include:

- Experimental capabilities with primary emphasis on nuclear and radiological facilities but also including other testing capabilities (e.g. thermal-hydraulic loops, control systems testing, etc.).
- Computational capabilities along with state-of the art modeling and simulation tools.
- Information and data through knowledge and validation center.
- Land use and site information for demonstration facilities.

> **The new paradigm for nuclear energy is epitomized by the GAIN initiative.**
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> ▶ *Dr. Mark Peters, INL lab director*

GAIN Objectives

When it comes to deploying new technologies, there are two primary challenges facing innovators – often referred to as "valleys of death." The objective of GAIN is to provide a way to fast-track the process for meeting these challenges:

- Faster and less expensive maturation of the technologies toward engineering-scale demonstration.
- Reduce risk of commercial deployment and reduce the cost uncertainty associated with the commercial units, which typically requires the construction and operation of a demonstration system.

Accessing GAIN

In close coordination with DOE's Office of Technology Transitions (OTT) and the Clean Energy Impact Investment Center, GAIN will provide a single point of contact for users. Access to GAIN will be provided through Idaho National Laboratory (INL), the nation's lead nuclear laboratory. Through GAIN, users can access world-class nuclear research resources and capabilities found at INL and throughout the DOE complex and national laboratories (e.g. Oak Ridge National Laboratory, Idaho National Laboratory and Argonne National Laboratory).

Please visit our website for further information: gain.inl.gov.

"Recognizing the reality that we must innovate differently today, GAIN fosters partnerships between labs, industry, universities and regulators to accelerate the transformation of advanced nuclear technologies into our clean energy future."

- ***Dr. Rita Baranwal, GAIN director***

PROGRAM CONTACTS

Lori Braase
lori.braase@inl.gov
208-569-2631

John Jackson
john.jackson@inl.gov
208-569-0055

MEDIA CONTACT

Joseph Campbell
joseph.campbell@inl.gov
208-521-7445

QUESTIONS?

gain@inl.gov